

What is claimed is:

1 Claim 1. A transdermal delivery system (TDS) for treatment of a living body by rapidly
2 delivering at least one active agent across the skin, said TDS including an effective amount of at
3 least one active agent solute in a solvent, said solute having molecular properties including van
4 der Waals forces and dipole moments, said solvent having molecular properties including van der
5 Waals forces and dipole moments, said molecular properties of said solvent being substantially
6 the same as said molecular properties of said solute and said solvent.

1 Claim 2. A TDS of claim 1 wherein said solvent comprises at least one solvent modifier
2 forming a solvent system, said solvent modifier changing the polarity of said solvent system to
3 substantially equal the polarity of said solute, said solvent modifier having molecular properties
4 including van der Waals forces and dipole moments, said solvent system having molecular
5 properties including van der Waals forces and dipole moments, said molecular properties of said
6 solvent system substantially the same as said molecular properties of said solvent system and said
7 solute.

1 Claim 3. A TDS of claim 1 wherein said solvent includes at least one solute modifier
2 forming a solvent system, said solute modifier forming a reversible complex with said solute for
3 facilitating passage of the solute complex across the skin, said solute modifier having molecular
4 properties including van der Waals forces and dipole moments, said molecular properties of said
5 solvent system being substantially the same as said molecular properties of said solvent system
6 and said solute.

1 Claim 4. A TDS of claim 2 wherein said solvent system includes at least one solute
2 modifier, said solute modifier forming a reversible complex with said solute for facilitating
3 passage of the solute complex across the skin, said solute modifier having molecular properties
4 including van der Waals forces and dipole moments, said molecular properties of said solvent
5 system being substantially the same as said molecular properties of said solvent system and said
6 solute.

1 Claim 5. A TDS of claim 1 wherein said solvent includes at least one compound for
2 stimulating the release of cellular energy in the skin forming a solvent system, said compound
3 having molecular properties including van der Waals forces and dipole moments, said solvent
4 system having molecular properties including van der Waals forces and dipole moments, said
5 molecular properties of said solvent system being substantially the same as said molecular
6 properties of said solvent system and said solute.

1 Claim 6. A TDS of claim 5 wherein said compound for stimulating the release of
2 cellular energy generates cAMP at the cellular level.

1 Claim 7. A TDS of claim 5 wherein said compound for stimulating the release of
2 cellular energy generates cGMP at the cellular level.

1 Claim 8. A TDS of claim 2 wherein said solvent system includes at least one compound
2 for stimulating the release of cellular energy in the skin, said compound having molecular
3 properties including van der Waals forces and dipole moments, said solvent system having
4 molecular properties, said molecular properties of said solvent system being substantially the
5 same as said molecular properties of said solvent system and said solute.

1 Claim 9. A TDS of claim 3 wherein said solvent system includes at least one compound
2 for stimulating the release of cellular energy in the skin, said compound having molecular
3 properties including van der Waals forces and dipole moments, said solvent system having
4 molecular properties including van der Waals forces and dipole moments, said molecular
5 properties of said solvent system being substantially the same as said molecular properties of said
6 solvent system and said solute.

1 Claim 10. A TDS of claim 4 wherein said solvent system includes at least one
2 compound for stimulating the release of cellular energy in the skin, said compound having
3 molecular properties including van der Waals forces and dipole moments, said molecular
4 properties of said solvent system being substantially the same as said molecular properties of said
5 solvent system and said solute.

1 Claim 11. A TDS of claim 1 wherein said solvent includes at least one skin stabilizer
2 composition to facilitate safe and effective dosage of said active agent and protect from local and
3 systemic sensitization forming a solvent system, said composition having molecular properties

4 including van der Waals forces and dipole moments, said solvent system having molecular
5 properties including van der Waals forces and dipole moments, said molecular properties of said
6 solvent system being substantially the same as said molecular properties of said solvent system
7 and said solute.

1 Claim 12. A TDS of claim 2 wherein said solvent system includes at least one skin
2 stabilizer composition to facilitate safe and effective dosage of said active agent and protect from
3 local and systemic sensitization, said composition having molecular properties including van der
4 Waals forces and dipole moments, said molecular properties of said solvent system substantially
5 the same as said molecular properties of said solvent system and said solute.

1 Claim 13. A TDS of claim 3 wherein said solvent system includes at least one skin
2 stabilizer composition to facilitate safe and effective dosage of said active agent and protect from
3 local and systemic sensitization, said composition having molecular properties including van der
4 Waals forces and dipole moments, said molecular properties of said solvent system substantially
5 the same as said molecular properties of said solvent system and said solute.

1 Claim 14. A TDS of claim 4 wherein said solvent system includes at least one skin
2 stabilizer composition to facilitate safe and effective dosage of said active agent and protect from
3 local and systemic sensitization, said composition having molecular properties including van der
4 Waals forces and dipole moments, said molecular properties of said solvent system substantially
5 the same as said molecular properties of said solvent system and said solute.

1 Claim 15. A TDS of claim 5 wherein said solvent system includes at least one skin
2 stabilizer composition to facilitate safe and effective dosage of said active agent and protect from
3 local and systemic sensitization, said composition having molecular properties including van der
4 Waals forces and dipole moments, said molecular properties of said solvent system substantially
5 the same as said molecular properties of said solvent system and said solute.

1 Claim 16. A TDS of claim 1 wherein said solvent includes at least one membrane
2 permeability modifier to enhance penetration of the skin forming a solvent system, said
3 membrane permeability modifier having molecular properties including van der Waals forces and
4 dipole moments, said molecular properties of said solvent system being substantially the same as
5 said molecular properties of said solvent system and said solute.

1 Claim 17. A TDS of claim 2 wherein said solvent system includes at least one
2 permeability modifier to enhance penetration of the skin, said permeability modifier having
3 molecular properties including van der Waals forces and dipole moments, said molecular
4 properties of said solvent system substantially the same as said molecular properties of said
5 solvent system and said solute.

1 Claim 18. A TDS of claim 4 wherein said solvent system includes at least one
2 permeability modifier having molecular properties including van der Waals forces and dipole
3 moments, said molecular properties of said solvent system substantially the same as said
4 molecular properties of said solvent system and said solute.

1 Claim 19. A TDS of claim 10 wherein said solvent system includes at least one
2 permeability modifier having molecular properties including van der Waals forces and dipole
3 moments, said molecular properties of said solvent system substantially the same as said
4 molecular properties of said solvent system and said solute.

1 Claim 20. A TDS of claim 14 wherein said solvent system includes at least one
2 permeability modifier having molecular properties including van der Waals forces and dipole
3 moments, said molecular properties of said solvent system substantially the same as said
4 molecular properties of said solvent system and said solute.

1 Claim 21. A TDS of claim 15 wherein said solvent system includes at least one
2 permeability modifier having molecular properties including van der Waals forces and dipole
3 moments, said molecular properties of said solvent system substantially the same as said
4 molecular properties of said solvent system and said solute.

1 Claim 22. A TDS of claim 3 wherein said solvent system includes at least one
2 permeability modifier having molecular properties including van der Waals forces and dipole
3 moments, said molecular properties of said solvent system substantially the same as said
4 molecular properties of said solvent system and said solute.

1 Claim 23. A TDS of claim 9 wherein said solvent system includes at least one
2 permeability modifier having molecular properties including van der Waals forces and dipole

3 moments, said molecular properties of said solvent system substantially the same as said
4 molecular properties of said solvent system and said solute.

1 Claim 24. A TDS of claim 13 wherein said solvent system includes at least one
2 permeability modifier having molecular properties including van der Waals forces and dipole
3 moments, said molecular properties of said solvent system substantially the same as said
4 molecular properties of said solvent system and said solute.

1 Claim 25. A TDS of claim 1 wherein said solvent includes a capillary dilator forming a
2 solvent system having molecular properties including van der Waals forces and dipole moments,
3 said molecular properties of said solvent system substantially the same as said molecular
4 properties of said solvent system and said solute.

1 Claim 26. A TDS of claim 18 wherein said solvent system includes a capillary dilator
2 having molecular properties including van der Waals forces and dipole moments, said molecular
3 properties of said solvent system substantially the same as said molecular properties of said
4 solvent system and said solute.

1 Claim 27. A TDS of claim 19 wherein said solvent system includes a capillary dilator
2 having molecular properties including van der Waals forces and dipole moments, said molecular
3 properties of said solvent system substantially the same as said molecular properties of said
4 solvent system and said solute.

1 Claim 28. A TDS of claim 21 wherein said solvent system includes a capillary dilator
2 having molecular properties including van de Waals forces and dipole moments, said molecular
3 properties of said solvent system substantially the same as said molecular properties of said
4 solvent system and said solute.

1 Claim 29. A TDS of claim 23 wherein said solvent system includes a capillary dilator
2 having molecular properties including van der Waals forces and dipole moments, said molecular
3 properties of said solvent system being substantially the same as said molecular properties of said
4 solvent system and said solute.

1 Claim 30. A TDS of claim 24 wherein said solvent system includes a capillary dilator
2 having molecular properties including van der Waals forces and dipole moments, said molecular
3 properties of said solvent system being substantially the same as said molecular properties of said
4 solvent system and said solute.

1 Claim 31. A transdermal delivery system (TDS) for treatment of a living body by rapidly
2 delivering an effective dose of at least 0.25 mg/cm²/day of at least one active agent across the
3 skin by application of said TDS to an area of the skin, said TDS comprising said at least one
4 active agent and a solvent system, said at least one active agent having a molecular weight in
5 excess of 300 Daltons, said at least one active agent having molecular properties including van
6 der Waals forces and dipole moments, said at least one active agent dissolved in said solvent
7 system as a solute, said solvent system having molecular properties including van der Waals

8 forces and dipole moments, said molecular properties of said solvent system substantially the
9 same as said molecular properties of said solvent system and said solute.

1 Claim 32. A TDS of claim 31 wherein said molecular weight of said active agent is from
2 about 340 Daltons to about 22,000 Daltons.

1 Claim 33. A TDS of claim 31 wherein said effective dose is from about 0.25
2 mg/cm²/day to about 1 mg/cm²/day.

Claim 34. A TDS of claim 33 wherein said molecular weight of said active agent is from
about 340 Daltons to about 22,000 Daltons.

Claim 35. A TDS of claim 31 wherein said TDS is formed as a unit dose, said unit dose
being approximately 1 cc, said unit dose comprising from about 0.25 mg to about 1 mg of said
medicament.

1 Claim 36. A TDS of claim 35 wherein said unit dose is a patch.

1 Claim 37. A TDS of claim 35 wherein said unit dose is a liquid.

1 Claim 38. A TDS of claim 31 wherein said molecular properties of said solute and
2 solvent system are within approximately $\pm 20\%$ of said molecular properties of said solvent
3 system.

1 Claim 39. A method of making a transdermal delivery system (TDS) comprising
2 (a) selecting one or more active agent;
3 (b) determining an effective dose of said active agent, said effective dose of said active agent
4 having molecular properties including van der Waals forces and dipole moments; (c) quantifying
5 said molecular properties of said active agent;
6 (d) determining an amount of a solvent to solubilize said effective dose of said active agent, said
7 amount of said solvent having molecular properties including van der Waals forces and dipole
8 moments;
9 (e) quantifying said molecular properties of said amount of said solvent;
10 (f) comparing said molecular properties of said active agent and said molecular properties
11 of said solvent;
12 (g) determining that said molecular properties of said solvent are substantially the same as
13 said molecular properties of said active agent and said solvent;
14 (h) combining said solvent and said active agent forming a true solution of said solvent and a
15 solute.

1 Claim 40. A method of making a TDS of claim 39 further comprising

2 (a) selecting additional ingredients for said solvent forming a solvent system, said
3 additional ingredients including at least one of solute modifiers, solvent modifiers, compositions
4 for release of cellular energy, skin stabilizers, membrane permeability modifiers, capillary
5 dilators and combinations thereof, each of said additional ingredients having molecular
6 properties including van der Waals forces and dipole moments;

7 (b) determining that said molecular properties of said solvent system are substantially the
8 same as said molecular properties of said solvent system and said solute;

9 (c) combining said solvent system and said solute.

10 Claim 41. A method of selecting the ingredients and amounts of a TDS comprising the steps
11 of:

12 (a) selecting one or more active agents necessary to treat a specific condition;

(b) quantifying the amount of said active agent for an effective dose;

(c) quantifying the molecular properties of said active agent to include van der Waals
forces and the sum of mol-moments;

(d) surveying solvents for said active agent;

(e) quantifying the amounts of said solvents to solubilize said active agent;

(f) quantifying the molecular properties of said solvents to include van der Waals forces and
mol-moments;

(g) comparing the molecular properties of said solvents to said molecular properties of said
active agent;

13 (h) determining additional ingredients to form a solvent system for transmigration;
14 (i) quantifying the molecular properties of said additional ingredients to include van der
15 Waals forces and mol-moments;
16 (j) determining a weighted sum of said molecular properties of said additional ingredients
17 and said molecular properties of said solvents to determine molecular properties of said solvent
18 system;
19 (k) summing said molecular properties of said solvent system and said active agent;
20 (l) comparing (j) and (k) ; and
21 (m) selecting said solvent system wherein said molecular properties of said active agent and
22 said solvent system are approximately $\pm 20\%$ of said molecular properties of said solvent system.